

NASA Administrator Charles Bolden

U.N. Committee on the Peaceful Uses of Outer Space

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Mr. Chairman and distinguished delegates, it is my distinct pleasure to be here today and to have the opportunity to address the Committee at its 56th session. I have noted that the history of this Committee as a permanent body in the United Nations and the history of NASA both date from the late 1950s, and I am proud to say that NASA has been involved in UNCOPUOS activities continuously since that time.

Over the years, UNCOPUOS has proven to be an effective catalyst for international cooperation in the peaceful use of outer space. I commend you for your continuing efforts, and the work being done by the two subcommittees, to stimulate cooperation

and to assist developing nations in creating the capacity to use space-based systems to improve the health and welfare of their populations. I recognize that the work of the Committee was instrumental in the development of the international legal framework under which we all operate in space today. Under this framework, the use of space by nations, international organizations, and private entities has flourished.

I have followed closely the work of the Committee over the past several years, and note with pleasure the successful development of the UN COPUOS guidelines for space debris mitigation, approved by the General Assembly in 2007.

Also noteworthy is the development in 2009, with the International Atomic Energy Agency (IAEA), of the Safety Framework for the Use of Nuclear Power Sources in Outer Space. I also want to thank the Committee for your decision to add space weather as an item on your agenda.

As I recently told a gathering of space weather experts in Washington, with the United Nations now involved, we are assured of even greater global coordination in the effort to increase our understanding of space weather and its impact on Earth and throughout our solar system.

These achievements represent significant steps to improve the safety and sustainability of space operations. I understand that you are in the midst of work to achieve consensus on best practice guidelines for space operations, and I pledge NASA's full support to that activity.

As most of you know, NASA has a long history of international cooperation. In fact, "cooperation with other nations and groups of nations" in the peaceful exploration of space was envisioned as a key element in the legislation that created NASA back in 1958. While we are proud of NASA's global leadership, we are also mindful that the scientific and human space flight achievements of

the past half century would not have been possible without international cooperation.

Fifty-two years ago, it was a Russian, Yuri Gagarin, who became the first human to orbit the Earth. NASA's Alan Shepard followed him a month later. America's historic 1969 moon landing was the result of the collective contributions of generations of astronomers and scientists – from Galileo to the brilliant German rocket scientist, Werner Von Braun, designer of the Saturn V rocket that made that first moon landing possible.

Though quite ironic, it is significant that both Gagarin and Von Braun were from nations formerly hostile to the United States. But there is something intrinsically unifying about humankind's exploration of the heavens. Beyond the scientific and economic benefits of launching into space, there is the great possibility that when viewed from orbit, our borderless Earth inspires a sense of both oneness and wonder. As the great British astronomer Sir

Fred Hoyle said in 1948, “Once a photograph of the Earth, taken from outside is available, a new idea as powerful as any in history will be let loose.” How very true!

President Obama has also made space exploration a key element of America’s commitment to building a more peaceful world.

In his speech at NASA’s Kennedy Space Center in Florida three years ago he said, “No longer are we racing against an adversary; in fact, what was once a global competition has long since become a global collaboration.”

That is why we vigorously support the goals of the United Nations and its various space-related entities, including the Office for Outer Space Affairs and the Committee on the Peaceful Uses of Outer Space. That is also why the United States will be hosting the ministerial-level International Space Exploration Forum (ISEF)

in Washington, DC on January 9, 2014. This Forum will build on a process started at the European Union-hosted High Level International Space Exploration Dialogue, held in 2011. There is strong international consensus to continue this process to build support for global cooperation in space exploration.

Such a forum for informal policy discussions among the key space faring nations will be useful, especially given fiscal constraints and growing interest worldwide.

I believe that the success of our modern space programs will be judged, in part, on how well we continue to make space exploration about global partnership, particularly since it is clear that no one nation can do it alone and the benefits to be gained are for all of humanity.

With NASA's long history of successful international cooperation, and more and more nations reliant on space based

capabilities to support their day-to-day lives, I have every reason to believe that we will continue to build strong relationships around the world and create a unified effort for expanding humanity's horizons beyond our planet.

Whether that means sending an astronaut to orbit, designing experiments, being the main supplier of a crucial part on one of our new observatories, or being a researcher who analyzes data from our spacecraft, there is going to be a role in exploration for everyone who wants to participate.

The period in which we now live represents a once-in-a-generation shift from a flagship program, the space shuttle, to a new way of doing things – a new paradigm, and a new set of priorities.

What does this mean for the future? NASA is in the future business and that means shaping tomorrow and helping us to reach our higher potential as human beings.

It is a very exciting time to be involved in space exploration. The retirement of the space shuttle after 30 incredible years of flight represented a bittersweet time for NASA, but the next great era of space exploration is quickly taking shape.

In fact, our most recent call for astronauts drew more than 6300 applications, the second highest we have ever had. And later today, we'll introduce the eight astronauts who will make up the NASA Astronaut Class of 2013 - Black, white, Native American, male and female, civilian and military, - they represent the tapestry of humanity that is so truly America. These explorers will help NASA achieve the agency's next generation exploration goals – they will fly on commercial vehicles to low-Earth orbit, continue cutting-edge research on the International Space

Station, travel in Orion to an asteroid and lead the way for those who will go to Mars in the 2030s.

President Obama's 2014 budget for NASA advances a strategic plan for the future that builds on our nation's continuing interest in science and technology, improves life on Earth, and protects our home planet, while creating well-paying jobs and strengthening the American economy.

Let me give you a few examples of how this affects our international partnerships.

First, the President's budget extends the life of the International Space Station -- the springboard to NASA's next great leap in exploration -- to at least 2020. All the partners agreed to this extension.

The ISS is a convergence of science, technology, and human innovation that is helping us learn what it means to be a spacefaring people by demonstrating new technologies and making research breakthroughs not possible on Earth. In addition to all the science and research on human health that has been and continues to be conducted on the International Space Station (ISS), one of the Station's historic achievements is how it demonstrated that many nations could work together on a project of enormous scope, complete it, and then keep it going.

Fifteen nations contributed to the development and assembly of the International Space Station and to date more than 68 nations have participated in some form of ISS utilization. With improved future access to ISS, it is anticipated that even more nations will become involved in the program through their utilization of this amazing research facility on-orbit.

The ISS represents our toehold to the rest of the solar system. What we learn there is going to make it possible for us to venture farther. Already, we have had people continuously in orbit 24/7 for more than 12 years. Just the thought of this would have been science fiction when I was a child.

Not only is the ISS the largest, most complex international scientific and engineering program in history, it is a test bed for future technologies and systems and is a tangible symbol of unprecedented international cooperation.

Just take a look outside on a clear evening and you might see a very bright shining star moving overhead. That is the International Space Station – the temporary home for international crews living and working in space and a world-class laboratory that conducts full-time research. Now that its construction is completed, we expect many more partnerships in the future with academia, industry, other U.S. agencies, and as I mentioned

earlier, other countries, to help bring it to its full potential and fully utilize this incredible investment.

A second area of shared interest is the global space community's interest in traveling farther than we have ever gone before into deep space. During President Obama's visit to Kennedy Space Center in April 2010, he set goals of sending humans to an asteroid for the first time in history by 2025 and making a crewed journey to Mars by the 2030s.

The President's recently announced \$17.7 billion 2014 budget request for NASA keeps us on track for fulfilling those ambitious goals. It fully funds the Space Launch System (SLS) heavy lift rocket and *Orion* Multipurpose Crew Vehicle (MPCV) needed to carry astronauts to deep space. There is an international component to this mission. In January, NASA and the European Space Agency announced that when the *Orion* spacecraft blasts off for its initial fully integrated test flight in 2017, it will be powered

by an ESA-supplied service module. I want to thank ESA for this important partnership. This is further evidence of the international cooperation that is so vital to the future of space exploration.

A third area of shared interest is our desire to improve international cooperation in the detection and characterization of Near Earth Objects, and for developing plans for dealing with these objects that threaten the Earth.

NASA strongly supports the recommendations of the Scientific and Technical Subcommittee regarding NEOs and is moving out on new work in this area.

NASA's vision is *to reach for new heights and reveal the unknown so that what we do and learn will benefit all humankind.*

It is hard to imagine anything more beneficial to humankind than protecting our planet from a dangerous, wayward asteroid that could strike the Earth with devastating force.

To that end we have begun work on an asteroid initiative that will engage every part of our agency as well as America's scientific, academic, aerospace and manufacturing industries in a collaborative effort that will benefit all humankind while bolstering the American economy. We also envision an important role for international participation in all aspects of this initiative.

This first-ever mission to identify, capture, and redirect an asteroid will allow NASA to accomplish multiple goals.

First, it takes advantage of the hard work on our deep space technologies and will provide valuable experience in future mission planning and operations. These missions will include, but not be limited to, future crewed deep-space missions, including our planned visit to Mars.

Second, it will allow our astronauts to interact with an asteroid for potential resource utilization in space. And third, it will inform

our efforts to prevent an asteroid or other Near Earth Object (NEO) from colliding with devastating force into our planet. Planning and design of this initiative have already begun and will continue into this coming summer. Leveraging capabilities throughout the Agency, we plan to use a high-power solar electric propulsion system to rendezvous with, capture, and redirect a small asteroid into a stable orbit in the lunar vicinity. From there our astronauts will be able to visit and return samples using the *Orion* spacecraft, the ESA service module, and our SLS rocket.

The events of February 15th were a stark reminder of why NASA has for years devoted so much attention to NEOs. The predicted close approach of a small asteroid and the unpredicted entry and explosion of a very small asteroid about 15 miles above Russia, have focused world-wide attention on the necessity of tracking asteroids and other NEOs and protecting our planet from them. The coincidence of having these two very rare events happening on the same day, along with the unfortunate injuries to

over 1,000 people on the ground in Russia, made this a very big news story.

While the probability of any sizable NEO impacting Earth anytime in the next 100 years is extremely remote, we cannot ignore this potential. The 1908 explosion of an asteroid over a remote part of Siberia devastated 830 square miles and flattened 80 million trees.

NASA currently leads the world in the detection and characterization of NEOs, and is responsible for the discovery of about 98 percent of all known NEOs. We are regularly monitoring the risks to our planet and constantly updating our knowledge. Seizing and isolating an asteroid will demonstrate our new deep space technologies, move us closer to our goal of sending humans to Mars and enhance our ability to protect our planet and prevent natural disasters from space.

While all of this is going on, our American industry partners are developing new ways to reach space, creating jobs and enabling NASA to focus on new technologies that benefit all of our missions.

A little more than one year after the end of the Space Shuttle Program, an industry partner, SpaceX, began resupplying the space station with cargo launched from the U.S, and the recent successful test launch by Orbital Sciences marks another significant milestone in NASA's plan to rely on American companies to launch supplies and astronauts to the International Space Station, bringing this important work back to the United States.

Under NASA's budget, the American cargo resupply program is funded to keep these operations on track.

The Administration is also committed to launching American astronauts from U.S soil within the next four years, and the budget provides the necessary resources to achieve this goal as well. The President's budget is also driving the development of space technologies such as solar electric propulsion that will power tomorrow's missions and help improve life on Earth.

Our technology investments not only increase the capabilities of NASA, but other government agencies and industry as well. This budget continues to build on our nation's record of breathtaking scientific discoveries and achievements in space, with science missions that will reach farther into our solar system, reveal unknown aspects of our universe and provide critical knowledge about our home planet.

On the heels of *Curiosity*, the most daring mission to Mars in history, the 2014 budget includes funding for another mission to the Red Planet, continues operations of our rovers and orbiters

already there, and makes possible the *MAVEN* mission's launch this November to study the Martian upper atmosphere, the *InSight* mission to launch in 2016, and NASA's continued cooperation in the European Space Agency's ExoMars program.

In close cooperation with partners around the world, NASA's budget will sustain our Agency's vital role in helping the global research community to better understand Earth's systems and climate and the dynamics between our planet and the sun. These efforts will provide critical knowledge about our home planet and potential threats.

We will continue our steady progress toward our next Great Observatory as we develop and conduct critical tests on the James Webb Space Telescope. Its planned launch in 2018 will again revolutionize our understanding of the universe. Like most of our science missions, JWST will be an international collaboration as we launch on an Ariane launcher from Curou.

We've had to make tough choices in the current fiscal environment, but NASA is using its resources strategically for a unified, cohesive exploration program that raises the bar of what humans can achieve.

This keeps us on track to turn low-Earth transportation of both cargo and crew over to commercial companies while it frees NASA and its international partners to take the next big leap into deep space and put the first footprints on Mars.

For more than 50 years the United States, working in partnership with UNCOPUOS and many of its member States, has taken a leadership role in the peaceful use of outer space. This partnership is driven by a clear understanding that issues of global importance, such as those addressed in this Committee, call for global involvement. Together, we have been working to share discoveries and knowledge of the universe, bring the benefits of space technology to developing countries, and

encourage the use of space as a tool for sustainable development here on the Earth. Together, we are embarked on an incredible new journey of exploration and discovery.

Please accept NASA's thanks for your continuing efforts, and our commitment to work with you to achieve goals that can only be achieved by peoples of all nations working together.

Thank you, Mr. Chairman.